AMENDMENTS TO THE SPECIFICATION:

Please amend the paragraph bridging pages 11 and 12 as follows:

In FIG. 5A, a first metal (e.g., gold) layer 502 is formed on a substrate 501 (see FIG. 5C) by, for example, evaporation in a vacuum. The thickness of these films is in the tens of nm range. In these Figures, the metal (e.g., gold) lines L1-L7 are shown both as solid and broken lines. The solid lines are similar to those used in the inverter circuit and the broken lines will be used to provide for connections and crossovers, as described below. FIG. 5A also shows that lines L1, L3 and L5 include field concentrators 508 which will be used below.

Please amend the first paragraph on page 12 as follows:

As shown in FIGS. 5 and 6, one of the contacts pads 526 on line IA of the first metal ~~gold~~ layer 502 will eventually form the output.

Please amend the second paragraph on page 12 as follows:

On top of this first metal (e.g., gold) layer 502, an insulating layer 503 (only shown in FIG. 5C) is deposited followed by a second ~~first~~ metal (e.g., aluminum) layer 504 as shown in FIG. 5B. The second ~~first~~ metal layer 504 includes contact pads 510. Two of these contact pads 528 and 530 on lines L4 and L6 will form contact inputs A and B as shown in FIG. 6, respectively. Square boxes in these figures also show where the connection lines C1 and crossover lines C2, C3, C4, and C5 will be formed.

Please amend the third paragraph on page 12 as follows:

Then, as shown in the cross-sectional view of FIG. 5C, a second insulating layer 505 followed by a second metal (e.g., aluminum) layer 506 is formed. There are now three metallic layers including a first metal (e.g., gold) layer 502, a second ~~first~~ metal (e.g., aluminum) layer 504 and a second metal (e.g., aluminum) layer 506 separated by insulating layers 503 and 505. The second metal layer 506 is at least formed on lines L3 and L5 as shown in FIG. 5D.

Please amend the first paragraph on page 13 as follows:

For the connections C1, the first metal (e.g., gold) layer 502 in line 12 is connected to the first metal (e.g., gold) layer 502 in line L4 and the metal (e.g., gold) layer in line L6 is connected to the second ~~first~~ metal layer 504 by applying a field(s) (e.g., an AC electric field) between the two appropriate lines in the presence of metal (e.g., gold) nanoparticles. The precise field type used is determined by the spacing between the lines. The spacing, in turn, may be determined by the desired device dimension.

Please amend the second paragraph on page 13 as follows:

In crossover C2, the first metal (e.g., gold) layer 502 in line L1 is connected to the second metal (e.g., aluminum) layer 506 and then to the first metal (e.g., gold) layer 502 in line L3, thus providing a crossover of line L2.

Please amend the third paragraph on page 13 as follows:

In crossover C3, second ~~first~~ metal (e.g., aluminum) layer 504 in line L2 is connected to the second metal (e.g., aluminum) layer 506 in line L3, which in turn is connected to line L4. In crossover C4, second metal (e.g., aluminum) layer 506 from line L3 is connected to second metal (e.g., aluminum) layer 506 of line L5 via second metal (e.g., aluminum) layer 506 of line L4. The last crossover C5, connects second metal (e.g., aluminum) layer 506 of line L5 to second ~~first~~ metal (e.g., aluminum) layer 504 of line L6 via second metal (e.g., aluminum) layer 506 of line L5.

Please amend the paragraph bridging pages 13 and 14 as follows:

Similarly to the method described in accordance with the first exemplary method, organic first and second type (e.g., p- and n-type) semiconductor molecules containing sulfur atoms at their ends are deposited by evaporation at an angle that exposes only one edge of the first metal (e.g., gold) film 502 in the active area of the device.

Please amend the first paragraph on page 14 as follows:

As illustrated in FIG. 5D, a first type (e.g., p-type) semiconductor material 520 is formed which has thiol (sulfur containing) molecules at the ends. As explained above, the first type (e.g. p-type) semiconductor material 520 deposits and self assembles in the proper orientation at the edges of the first metal (e.g., gold) film 502 on one side. Similarly, a second type (e.g., n-type) organic material with sulfur termination is deposited from the other side so as to form a self-assembled second type (e.g., n-type) organic film 522 on the first metal (e.g., gold) film 502.

Please amend the second paragraph on page 14 as follows:

Next, the second metal (e.g., aluminum) layer 504 is connected to the other ends of the organic surfaces 520 and 522 (the side opposite to the ones attached to the first metal (e.g., gold) film 502). As explained above, this is done by bringing the assembly into contact with a solution which contains metallic nanoparticles and by applying an electric field between the first metal (e.g., gold) film 502 and the second metal (e.g., aluminum) layer 504. The electric field attracts metal (e.g., gold) nanoparticles to the field concentrators 508 (shown in FIG. 5a), whereby the nanoparticles deposit on the field concentrators 508 to form nanowires 524 (FIG. 5E) that will terminate on the sulfur containing organic semiconductor material 520 and 522. If the particles in the solution are made of gold, then the sulfur will form a bond with the nanowires 524. This completes the fabrication and the resulting exemplary structure is a NAND gate 600, as shown schematically in FIG. 6.